Euclid's Mystery of the Missing Graphics

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Ever study Euclid and notice that, when it came to the math, as in Book 5, the proportions and stuff, you get a bunch of lines, and it is left up to you to figure out how to draw those lines in the proportions given. It seems to be left up to you to figure it out. Reminds you of Plato, in his dialogs, never seems to give a clear answer, you have to figure it out. Well, Plato and Euclid did work together, on Dialectic, but he is only mentioned one time in the Dialogs, the same dialog whose main character became also a renowned mathematician, Theaetetus. And both of them, indicated as a memory.

So, let us show how all those lines are produced, so that we do not seem like we missed the boat, as a dunce in class; like the commentators in Heath's notes on these figures; not even Heath seems to have caught any fish. Let us learn how to find arithmetic, and geometric, series with any given line. We are going to start with Proposition 35, Book 3. So, before you continue, open up Euclid's Elements, which you will find in the accompanying folder, and study 35, 36, and 37. We are going to put them together and learn about fractions, arithmetic and geometric series.

The second figure is provided by Proposition 36. What should be obvious, but which is not stated, is that AB, the random point outside the circle, should always produce AB through the center, as the Unit. AB will always equal 1.

And taken at random you will see that you can perform a number of equations for any particular point, you do not actually have to do arithmetic without a paradigm, and without the paradigm always solving the equation, for example, G × H ÷ I = J, etc., and with just a few of these, one can acquire quite a number of equations to demonstrate on, and a number of lines to set out, produced by the figure, which will always be in the correct proportion.

Next let us take the figure and divide CE into a given number of equal segments.

The number of possible equations developed exponentially.

Now let us do a Geometric Series.

And we can combine series in various ways.

And there are other ways to divide and mix and match to produce the thing's one finds interesting or useful. It is true, one can do any one of these using the parallelogram method, but, alas, only one at a time, and somewhat cumbersome. But make no mistake, Geometry, the figures, can do all the math and several radically different looking figures can do the math of other simpler figures.

$N = 7.00000$

$A = 2.64575$

$A^2 = 7.00000$

$B = 1.75000$

$C = 1.76504$

$D = 3.96592$

$C \cdot D = 7.00000$

$\frac{N}{A^2} = 1.00000$

$\frac{N}{C \cdot D} = 1.00000$

$0 = 0.00000$

$1 = 1.00000$

$N - A^2 = 0.00000$

$N - (C \cdot D) = 0.00000$

$(B - 1) = 0.75000$

$\frac{N - B}{B - 1} = 7.00000$

$\frac{N - B}{B - 1} - N = 0.00000$

$\frac{(C \cdot D) - B}{B - 1} - (C \cdot D) = 0.00000$